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RAW SEQUENCE LISTING  
PATENT APPLICATION: US/10/080,299

DATE: 03/08/2002  
TIME: 15:21:47

Input Set : A:\ICC127.ST25.txt  
Output Set: N:\CRF3\03082002\J080299.raw

3 <110> APPLICANT: Birkett, Ashley J.  
 5 <120> TITLE OF INVENTION: INFLUENZA IMMUNOGEN AND VACCINE  
 7 <130> FILE REFERENCE: ICC 127.0 4564/84273  
 C--> 9 <140> CURRENT APPLICATION NUMBER: US/10/080,299  
 10 <141> CURRENT FILING DATE: 2002-02-21  
 12 <150> PRIOR APPLICATION NUMBER: 09/930,915  
 13 <151> PRIOR FILING DATE: 2001-08-15  
 15 <160> NUMBER OF SEQ ID NOS: 83  
 17 <170> SOFTWARE: PatentIn version 3.1  
 19 <210> SEQ ID NO: 1  
 20 <211> LENGTH: 183  
 21 <212> TYPE: PRT  
 22 <213> ORGANISM: Hepatitis B virus  
 24 <400> SEQUENCE: 1  
 26 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu  
 27 1 5 10 15  
 30 Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp  
 31 20 25 30  
 34 Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys  
 35 35 40 45  
 38 Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu  
 39 50 55 60  
 42 Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala  
 43 65 70 75 80  
 46 Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys  
 47 85 90 95  
 50 Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg  
 51 100 105 110  
 54 Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr  
 55 115 120 125  
 58 Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro  
 59 130 135 140  
 62 Glu Thr Thr Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr  
 63 145 150 155 160  
 66 Pro Ser Pro Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Ser  
 67 165 170 175  
 70 Gln Ser Arg Glu Ser Gln Cys  
 71 180  
 74 <210> SEQ ID NO: 2  
 75 <211> LENGTH: 185  
 76 <212> TYPE: PRT  
 77 <213> ORGANISM: Hepatitis B virus  
 79 <400> SEQUENCE: 2

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81 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu  
82 1 5 10 15  
85 Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp  
86 20 25 30  
89 Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys  
90 35 40 45  
93 Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu  
94 50 55 60  
97 Leu Met Thr Leu Ala Thr Trp Val Gly Asn Asn Leu Gln Asp Pro Ala  
98 65 70 75 80  
101 Ser Arg Asp Leu Val Val Asn Tyr Val Asn Thr Asn Met Gly Leu Lys  
102 85 90 95  
105 Ile Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg  
106 100 105 110  
109 Glu Thr Val Leu Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr  
110 115 120 125  
113 Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro  
114 130 135 140  
117 Glu Thr Thr Val Val Arg Arg Arg Asp Arg Gly Arg Ser Pro Arg Arg  
118 145 150 155 160  
121 Arg Thr Pro Ser Pro Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg  
122 165 170 175  
125 Arg Ser Gln Ser Arg Glu Ser Gln Cys  
126 180 185  
129 <210> SEQ ID NO: 3  
130 <211> LENGTH: 185  
131 <212> TYPE: PRT  
132 <213> ORGANISM: Hepatitis B virus  
134 <400> SEQUENCE: 3  
136 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu  
137 1 5 10 15  
140 Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp  
141 20 25 30  
144 Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys  
145 35 40 45  
148 Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu  
149 50 55 60  
152 Leu Met Thr Leu Ala Thr Trp Val Gly Asn Asn Leu Glu Asp Pro Ala  
153 65 70 75 80  
156 Ser Arg Asp Leu Val Val Asn Tyr Val Asn Thr Asn Val Gly Leu Lys  
157 85 90 95  
160 Ile Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg  
161 100 105 110  
164 Glu Thr Val Leu Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr  
165 115 120 125  
168 Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro  
169 130 135 140  
172 Glu Thr Thr Val Val Arg Arg Arg Asp Arg Gly Arg Ser Pro Arg Arg  
173 145 150 155 160

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176 Arg Thr Pro Ser Pro Arg Arg Arg Pro Ser Gln Ser Pro Arg Arg Arg  
177 165 170 175  
180 Arg Ser Gln Ser Arg Glu Ser Gln Cys  
181 180 185  
184 <210> SEQ ID NO: 4  
185 <211> LENGTH: 183  
186 <212> TYPE: PRT  
187 <213> ORGANISM: Hepatitis B virus  
189 <400> SEQUENCE: 4  
191 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu  
192 1 5 10 15  
195 Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp  
196 20 25 30  
199 Thr Ala Ala Ala Leu Tyr Arg Asp Ala Leu Glu Ser Pro Glu His Cys  
200 35 40 45  
203 Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp  
204 50 55 60  
207 Leu Met Thr Leu Ala Thr Trp Val Gly Thr Asn Leu Glu Asp Pro Ala  
208 65 70 75 80  
211 Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Val Gly Leu Lys  
212 85 90 95  
215 Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg  
216 100 105 110  
219 Glu Thr Val Leu Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr  
220 115 120 125  
223 Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro  
224 130 135 140  
227 Glu Thr Thr Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr  
228 145 150 155 160  
231 Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser  
232 165 170 175  
235 Gln Ser Arg Glu Ser Gln Cys  
236 180  
239 <210> SEQ ID NO: 5  
240 <211> LENGTH: 183  
241 <212> TYPE: PRT  
242 <213> ORGANISM: Marmota monax  
244 <400> SEQUENCE: 5  
246 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ser Ser Tyr Gln Leu Leu  
247 1 5 10 15  
250 Asn Phe Leu Pro Leu Asp Phe Phe Pro Asp Leu Asn Ala Leu Val Asp  
251 20 25 30  
254 Thr Ala Thr Ala Leu Tyr Glu Glu Glu Leu Thr Gly Arg Glu His Cys  
255 35 40 45  
258 Ser Pro His His Thr Ala Ile Arg Gln Ala Leu Val Cys Trp Asp Glu  
259 50 55 60  
262 Leu Thr Lys Leu Ile Ala Trp Met Ser Ser Asn Ile Thr Ser Glu Gln  
263 65 70 75 80  
266 Val Arg Thr Ile Ile Val Asn His Val Asn Asp Thr Trp Gly Leu Lys

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Input Set : A:\ICC127.ST25.txt  
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267               85               90               95  
270 Val Arg Gln Ser Leu Trp Phe His Leu Ser Cys Leu Thr Phe Gly Gln  
271               100              105              110  
274 His Thr Val Gln Glu Phe Leu Val Ser Phe Gly Val Trp Ile Arg Thr  
275               115              120              125  
278 Pro Ala Pro Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro  
279               130              135              140  
282 Glu His Thr Val Ile Arg Arg Arg Gly Gly Ala Arg Ala Ser Arg Ser  
283 145              150              155              160  
286 Pro Arg Arg Arg Thr Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro  
287               165              170              175  
290 Arg Arg Arg Arg Ser Gln Cys  
291               180  
294 <210> SEQ ID NO: 6  
295 <211> LENGTH: 217  
296 <212> TYPE: PRT  
297 <213> ORGANISM: Spermophilus variegatus  
299 <400> SEQUENCE: 6  
301 Met Tyr Leu Phe His Leu Cys Leu Val Phe Ala Cys Val Pro Cys Pro  
302 1               5               10               15  
305 Thr Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Asp Met Asp  
306               20              25               30  
309 Ile Asp Pro Tyr Lys Glu Phe Gly Ser Ser Tyr Gln Leu Leu Asn Phe  
310               35              40               45  
313 Leu Pro Leu Asp Phe Phe Pro Asp Leu Asn Ala Leu Val Asp Thr Ala  
314               50              55               60  
317 Ala Ala Leu Tyr Glu Glu Leu Thr Gly Arg Glu His Cys Ser Pro  
318 65              70              75               80  
321 His His Thr Ala Ile Arg Gln Ala Leu Val Cys Trp Glu Glu Leu Thr  
322               85              90               95  
325 Arg Leu Ile Thr Trp Met Ser Glu Asn Thr Thr Glu Glu Val Arg Arg  
326               100             105              110  
329 Ile Ile Val Asp His Val Asn Asn Thr Trp Gly Leu Lys Val Arg Gln  
330               115             120              125  
333 Thr Leu Trp Phe His Leu Ser Cys Leu Thr Phe Gly Gly His Thr Val  
334               130             135              140  
337 Gln Glu Phe Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Ala Pro  
338 145              150              155              160  
341 Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu His Thr  
342               165              170              175  
345 Val Ile Arg Arg Arg Gly Gly Ser Arg Ala Ala Arg Ser Pro Arg Arg  
346               180              185              190  
349 Arg Thr Pro Ser Pro Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg  
350               195              200              205  
353 Arg Ser Gln Ser Pro Ala Ser Asn Cys  
354               210              215  
357 <210> SEQ ID NO: 7  
358 <211> LENGTH: 51  
359 <212> TYPE: DNA

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Input Set : A:\ICC127.ST25.txt  
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360 <213> ORGANISM: Artificial Sequence  
 362 <220> FEATURE:  
 363 <223> OTHER INFORMATION: plasmid pkk223  
 365 <400> SEQUENCE: 7  
 366 ttcacacagg aaacagaatt cccggggatc cgtcgacctg cagccaagct t 51  
 369 <210> SEQ ID NO: 8  
 370 <211> LENGTH: 38  
 371 <212> TYPE: DNA  
 372 <213> ORGANISM: Artificial Sequence  
 374 <220> FEATURE:  
 375 <223> OTHER INFORMATION: plasmid pkk223  
 377 <400> SEQUENCE: 8  
 378 ttcacataaag gagaaaaaaa ccatggatc cgaagctt 38  
 381 <210> SEQ ID NO: 9  
 382 <211> LENGTH: 24  
 383 <212> TYPE: PRT  
 384 <213> ORGANISM: Hepatitis B virus  
 386 <220> FEATURE:  
 387 <221> NAME/KEY: MISC\_FEATURE  
 388 <222> LOCATION: (1)..(1)  
 389 <223> OTHER INFORMATION: Xaa at position 1 is methionine or absent. If methionine  
 then Xaa  
 390       a in positions 2 through 8 are not absent  
 393 <220> FEATURE:  
 394 <221> NAME/KEY: MISC\_FEATURE  
 395 <222> LOCATION: (2)..(2)  
 396 <223> OTHER INFORMATION: Xaa at position 2 is serine or absent. If serine then Xaa in  
 pos  
 397       itions 3 through 8 are not absent.  
 400 <220> FEATURE:  
 401 <221> NAME/KEY: MISC\_FEATURE  
 402 <222> LOCATION: (3)..(3)  
 403 <223> OTHER INFORMATION: Xaa at position 3 is leucine or absent. If leucine then Xaa  
 in p  
 404       ositions 4 through 8 are not absent.  
 407 <220> FEATURE:  
 408 <221> NAME/KEY: MISC\_FEATURE  
 409 <222> LOCATION: (4)..(4)  
 410 <223> OTHER INFORMATION: Xaa at position 4 is leucine or absent. If leucine then Xaa  
 in p  
 411       ositions 5 through 8 are not absent.  
 414 <220> FEATURE:  
 415 <221> NAME/KEY: MISC\_FEATURE  
 416 <222> LOCATION: (5)..(5)  
 417 <223> OTHER INFORMATION: Xaa at position 5 is threonine or absent. If threonine then  
 Xaa  
 418       in positions 6 through 8 are not absent.  
 421 <220> FEATURE:  
 422 <221> NAME/KEY: MISC\_FEATURE  
 423 <222> LOCATION: (6)..(6)  
 424 <223> OTHER INFORMATION: Xaa at position 6 is glutamic acid or absent. If glutamic  
 acid t  
 425       hen Xaa in positions 7 through 8 are not absent.

428 <220> FEATURE:  
429 <221> NAME/KEY: MISC\_FEATURE

Use of n and . or Xaa has been detected in the Sequence Listing. Review the Sequence Listing to ensure a corresponding explanation is present in the <220> to <223> fields of each sequence using n or Xaa.

VERIFICATION SUMMARY  
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DATE: 03/08/2002  
TIME: 15:21:48

Input Set : A:\ICC127.ST25.txt  
Output Set: N:\CRF3\03082002\J080299.raw

L:9 M:270 C: Current Application Number differs, Replaced Current Application Number  
L:514 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9  
L:518 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9